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# IT Governance in Local Governments

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IT governance has attracted increasing attention in the light of the digitalisation of the public sector. This paper investigates how IT governance is conducted in local governments. Findings are presented from a case study of IT governance in a medium-sized Danish municipality. The following research question is posed: how does a municipality conduct IT governance within the school sector? This research question addresses the overall issue of local governments' transition to e-government.

According to a theoretical framework addressing the organisation of IT-governance, and the distribution of leadership in public organisations, the analysis focuses on how actors at different levels of the municipality conduct IT governance. The focus is both on the organisation of the IT department, as well on IT governance distributed at different levels throughout the organisation. The empirical data consists of qualitative interviews with leading managers within the municipality, and with the headmasters of two local schools, as well as shadowing of the local CIO.

The findings reveal that the organisation of the interaction between the IT department and the local schools plays a crucial role in the enactment of IT governance. In this case, the problem of a fragmented organisation was solved by the creation of a hybrid organisation. Insights from this case study can therefore help CIOs from other local governments to learn how to successfully conduct IT governance.

The case also shows how IT governance is distributed among a range of different actors at several levels of the organisation. The distribution of IT governance takes place in two directions. The first direction is from the top of the organisation (here the IT department) towards the bottom of the organisation (here a particular local school). The other direction is among different professionals where competence in the usage of IT is distributed from the professionals in the IT department to the professionals of the school sector. The insights of distributed leadership in two directions is a finding, which is salient to theoretical debates about IT governance.

## Keywords

IT governance; e-government for local governments; distributed leadership; IT governance in the school sector.

## 1. Introduction

Attention to IT governance has intensified against the backdrop of the ongoing, profound process of public sector digitalisation. While this issue is the subject of lively debates and research within the private sector (e.g. Westerman et al., 2017), less attention has been paid to it within the public sector. In the Danish context, the question of IT governance was identified as an issue for improvement in a public strategy for the digitalisation of local governments in 2010 (KL, 2010), and following that, a private think tank called "The Digital Council" described public IT governance as a clearly under-researched area (Det Digitale Råd, 2012).

This paper presents the findings of a case study of IT governance in a medium-sized Danish municipality. I seek to answer the following research question: how does a municipality conduct IT governance within the school sector? This research question addresses within the overall issue of local governments' transition to e-government.

The analysis focuses on how IT governance is distributed among different levels of the organisation and among different professionals. The concept of 'distributed leadership' is a relatively new concept, and a brief literature search reveals that it has not yet been used to analyse IT governance. Hence, this paper contributes to theoretical debates about IT governance as a form of distributed leadership.

The paper is structured as follows. First, I briefly present the theoretical framework. I then present the case and the empirical data. Finally, I present the analysis, sum up the findings, and conclude.

## 2. Theoretical framework

The theoretical approach in this paper builds on a general understanding of technological innovation as a process whereby social actors shape technology through interactions with each other and with the technological artefact in question (e.g. Jæger and Pors, 2017). However, this approach is too general to conduct an analysis of IT governance; hence, this study draws on literature focusing on IT governance in private as well as public organisations.

In general, research on IT governance focuses on the specific conditions for introducing IT in organisations. In an oft-quoted study of 300 private companies, Weill and Ross (2004) conclude that IT governance is highly important since companies with well-functioning IT governance show 20% higher profits than companies that lack this. A recent study (Westerman et al., 2017) verifies this, concluding that companies that undergo a digital transformation, due to strong IT governance, enjoy much better financial performance than beginners in the digital transformation (fig. 4, p. 7).

The literature on IT governance in private organisations contains an array of different definitions of IT governance. Weill and Ross (2004) acknowledge that IT governance is difficult to define, but “one thing is clear: effective IT governance doesn’t happen by accident.” (p. 1). Some definitions distinguish between IT management and IT governance: “IT management focuses on the internal effective operation of IT products and services, as well as the administration of existing IT operations. In contrast, IT governance is a higher level activity aimed at ensuring that IT is aligned with the present and future demands and goals of the business and its customers.” (Campbell et al., 2009: 8). Since the aim of this paper is to investigate how local governments enact IT governance, the focus is on the ‘higher level activity’, and I use the term IT governance.

Based on a review of the literature on IT governance in private organisations, Willson and Pollard (2009) conclude that IT governance is a broader concept than ordinary corporate governance, and they come up with a more elaborate definition of IT governance. “IT governance is the strategic alignment of IT with the business such that maximum business value is achieved through the development and maintenance of effective IT control and accountability, performance management and risk management.” (p. 99).

According to these broad definitions of IT governance, research in this area often focuses on one or more facets of IT governance. In the above-mentioned literature review, Wilson and Pollard (2009: 99) indicate that the following facets are essential for IT governance: strategic alignment between the IT and the core business of the organisation; risk management; performance management; control and accountability; delivery of business value; and capability management. Even though all these facets of IT governance are essential, the research question posed in this study calls for a different point of departure. Specifically, this study will use two different, but overlapping, approaches: the organisation of the IT department, and the distribution of leadership in the organisation.

The first theoretical approach drawn on in this paper, the organisation of IT departments, emerged from the field of e-government. For instance, Heeks (2006) describes the organisation of the IT department as a matter of either centralising the IT function in a central IT department, or decentralising it and thereby making it possible to get closer to an organisation’s core business activities. Heeks (2006) argues that the best IT governance is very often a mix of these two positions, which he calls *a hybrid approach to the organisation*. Weill and Ross (2004) also discuss this theme, describing how private companies often swing between centralised and decentralised IT organisation. Centralised IT organisation enables CEOs to make effective use of IT, while decentralised IT organisation makes it possible to adapt technology to local needs. In this way, Weill and Ross (2004: 10-13) regard good IT governance as a question of finding the right *hybrid way of organising* the IT department that fits the organisation in question.

The second theoretical approach deployed in this paper emerged from the field of management and leadership, and for the purpose of this investigation the concept of *distributed leadership* is especially relevant.

Van Wart (2015) describes this concept as a new trend within the field of management literature, which is also referred to as 'horizontal leadership' or 'network leadership'. According to Van Wart (2015), this type of leadership becomes relevant because of the development "from government to governance" (p. 140), which results in the distribution of leadership among partners in a network.

Although the concept of distributed leadership is absent from analyses of IT governance, it seems to have a platform in the study of school leadership. According to Diamond and Spillane (2016: 148), this concept was developed due to dissatisfaction with traditional approaches to the study of school leadership, which tend to focus on the characteristics of people in leading positions and their way of thinking. Instead, they sought to turn away from stories about leaders as heroes and instead focus on the practice of leadership (Spillane 2005: 144). This shifts our attention away from the leader's knowledge and skills and towards the interactions between leaders and their followers, and the situations in which they interact. In this way, the concept of distributed leadership contributes to this investigation by enabling a focus on how leaders distribute IT governance among their followers. According to Diamond and Spillane (2016), the definition of distributed leadership is: "A distributed perspective frames leadership practice as a product of the interactions of leaders, followers, and their situation, acknowledging that people can move in and out of leadership roles regardless of position (...). Thus, attention to interactions, rather than fixating on individual actions, is essential." (p. 148).

To sum up, these theoretical approaches have informed the empirical part of this case study. Accordingly, my analysis of how to enact IT governance in a municipality will focus on the organisation of the IT department and the specific interaction among different actors, notably how IT governance is distributed at different levels of the organisation and among different professionals.

### **3. Empirical background**

Denmark is a front-runner when it comes to the digitalisation of the public sector. For the last couple of decades, Denmark has ranked among the top five countries in several UN ranking lists (e.g. 2014), and in the latest EU ranking (2017) Denmark ranked first. Denmark is therefore a relevant country for a case study of IT governance in the public sector.

For the purpose of this investigation, Roskilde Municipality (RM) was selected for the case study. Roskilde is a medium-sized municipality (the 14<sup>th</sup> largest out of 98 municipalities in Denmark). According to the city manager, RM is not a front-runner in digitalisation but neither is it lagging behind. These conditions make RM a relevant municipality as a case for studying IT governance.

A study of how to conduct IT governance in a municipality must address different levels of the organisation. At the central level, it is obviously relevant to include the CIO and the role of the central IT department. When it comes to the study of how to enact IT governance at lower levels of the organisation, several opportunities present themselves. A typical Danish municipality operates in many different areas ranging from buildings maintenance to roads and parks and the health and social care of vulnerable citizens. In order to study the decentralised level, the local school sector seems relevant. Running public schools is a central task for municipalities, which involves many different actors (school administration, teachers, pupils, and parents) and the use of IT in public schools has, in Denmark, been the focus of a lively debate.

Altogether, the empirical data for the investigation consists of seven qualitative interviews and one day of shadowing (Kristensen, 2016). The study of how the CIO conducted IT governance consisted of an initial interview followed by one day of shadowing, and then a further interview. Besides this, I carried out interviews with the city manager and the vice city manager. The study of the school sector consisted of an interview with the CEO of the school sector, and two interviews with headmasters of local schools. One school was identified as being at the forefront of digital transformation, and the other as lagging behind.

### **4. Conducting IT governance in a municipality**

The following section presents the findings of the case study analysis. Based on the theoretical framework, the analysis is divided into two sections: 1) IT governance conducted through the organisation of the IT department; 2) IT governance conducted through the distribution of leadership.

#### 4.1 Building a hybrid organisation

According to the interviews, IT governance has changed radically over the past 10 years. At that time, IT governance, or rather IT management, was mostly carried out by IT department at the central level. The CIO would decide to purchase a new IT system, and the IT department would then roll it out in all the local schools. The headmasters and other teachers were not involved in the decision-making, and often they did not find the selected IT system useful or relevant for their needs. Some aspects of the IT management were decentralised to each school and completely decoupled from the IT department at the central level. Many headmasters gave some hours to one or two teachers who had a personal interest in IT so that they could run the school's IT system. They often used other kinds of digital equipment and ran different IT systems than those introduced by the IT department.

This organisational structure resulted in fragmented IT governance, which in turn led to a mess of different technological solutions and different levels of performance. Many teachers did not trust the technology since they often experienced that it did not work. When preparing their teaching, they had to decide whether or not to use IT. In time-scarce situations, many teachers could only manage to prepare one type of material and, not surprisingly, they chose the method they knew they could rely on – i.e. teaching without IT.

To solve these problems, a committee was set up consisting of the CIO and one of his staff, the CEO of the school sector and one of his staff, and two headmasters. They were assigned the task of developing an IT strategy for the local school sector. The committee came up with the idea of creating a special IT school team in connection to the central IT department. In this way, the committee sought to replace the teachers with a personal interest in IT with professional IT technicians. Today, this school team consists of a group of technicians who serve one or two local schools four days a week. In this way, they have become a part of the local schools' structure: they learn about each school's special needs, and they are able to solve the teachers' technical problems. Nowadays, if a teacher runs into a technical problem, s/he just calls the technician and within a couple of minutes, he arrives at the classroom and solves the problem. This has strengthened the teachers' trust in IT and their use of IT in teaching has increased rapidly.

This means of organising efforts to implement IT in the school sector is an example of a hybrid organisation. By creating a hybrid organisation, the local government overcame the fragmentation of an organisation split into a central and a decentralised section. The members of the IT school team belong both to the central IT department and to a decentralised local school. The interviewed persons, from both levels of the organisation, all agree that the new hybrid organisation makes the digital transformation of the local schools much smoother.

This kind of hybrid organisation requires competence building among the technicians in the IT school team, since the technological tools involved evolve rapidly and keeping pace with this is demanding. Hence, the members of the IT school team spend the fifth day of each week in the central IT department. Here, they can share experiences, exchange knowledge about new technological possibilities, and pick up new developments in the IT department. In this way, they use the day at the IT department to develop their competences. This is one way to professionalise the schools' IT management and to acknowledge that IT skills must develop at the same pace as the technology itself.

There is also a need for an increased focus on teachers' IT competences. Due to this, the former school library was converted into a pedagogical IT support unit. The librarians now serve as experts in the use of IT tools for teaching in different subjects. They are able to supervise the teachers in how to use certain programmes for teaching e.g. history, maths, or English. Beside this source of competence building, some of the local schools work with 'super users' among the teachers for every single subject. These super users also serve as experts in the use of different IT tools, and in this way, they spread the ability to use these tools among their colleagues. These initiatives also serve to overcome the former fragmentation of the organisation. Before, knowledge about IT was located in the IT department and a few people working in the schools. Today, knowledge about IT is diffused among the teachers in such a way that they become able to use this knowledge together with their professional skills as teachers in a certain subject.

## 4.2 Distributing leadership

The development of a hybrid IT organisation described above also involves a process of distributing leadership from the IT department to the school sector. The CIO describes this development in the same way as the above-mentioned shift from IT management to IT governance. Before, he only managed the IT department, while today he conducts IT governance by interacting with his fellow CEOs. In these interactions, the CIO is responsible for making sure that new IT systems fit into the existing IT infrastructure, and the CEO of the school sector (in this case) is responsible for taking care of the schools' core values. In this way, the interaction between the CIO and the other CEOs in the municipality becomes crucial for the digital transformation. The CIO explained it thus:

"In this way, it's actually each CEO's responsibility to make sure that they get the IT solution they need – it's part of their tasks as manager. This is where IT governance comes in. The CEOs also have to reflect on digitalisation within their field. Hence, the idea is that they can use me, and the IT department, as a sparring partner so that we guarantee that the equipment they select is compatible with the IT infrastructure and the other IT systems we have. Actually, it's working better and better all the time."

The case also reveals how distributed leadership plays out when it comes to IT strategies. In Denmark, there is a strong tradition of designing strategies for the IT transformation of the public sector at national and municipal level, and at the level of single welfare areas. This interconnected web of IT strategies has been identified as an important factor shaping the success of e-government development (Jæger, 2017). In a municipality, it is the CIO's task to make sure there is alignment between the strategies at the national and municipal levels. In this way, the local strategy functions as an internal tool that is used to create alignment between the overall strategy and the core business of the municipality. The overall strategies are, however, very general and do not say anything specific about single welfare areas such as the school sector. It is the task of the CEO of the local school sector, together with the CIO, to translate the general strategy into a strategy for the local schools. Once this is done, there is still one more distribution process that remains to be carried out: namely, every headmaster has to translate the strategy for the local school sector into a hands-on plan for action in his/her school. In this way, a distribution of leadership occurs during the process of translating the overall strategy for a digital transformation of the public sector into a strategy for the municipalities, and then into a strategy for the school sector, and finally into a strategy for each school.

In the last phase of designing strategies for the IT transformation of municipalities, values and knowledge about the welfare area in question become increasingly important. While the overall strategy is mainly driven by technological possibilities and the promise of a more effective public service, the strategies for the school sector and the individual schools are driven by the objectives and values of the school sector. Thus, the work of translating the overall strategy to the school sector needs to reflect both the strategic objectives of the IT transformation, and the teaching needs in a given school. The CEO of the school sector described it thus:

"It shouldn't be the tail wagging the dog in excitement over the technological opportunities. In that case, we will lose our purpose. Everything we do, all our interactions, must be grounded in the children's learning and well-being."

A new IT system called 'My Education' can serve as an example of this crucial interaction between the IT department and the school sector. 'My Education' was developed in response to a relatively new Danish law requiring individual learning plans for all pupils in public schools. At the time of this case study, RM had decided to try out one of four solutions competing for this task. The CEO of the school sector described this solution as a pedagogical IT system or 'Learning Platform'. It runs on iPads, and has three purposes: it functions as a learning platform for the pupils, as a tool for the teachers to fill in learning plans, and as a platform for communication between the school and the parents. The IT system was not yet fully developed, and RM invited the schools to join a pilot project to test and complete the system. Several schools signed up for the pilot project (including the two schools in this case study), and the interviewed persons described the pilot project as a positive process where the supplier was very flexible and open to including each school's needs and wishes.

As a learning platform for the pupils, 'My Education' includes all the apps the pupils need in their daily work, such as textbooks, exercises, and exams. In this way, the IT system aims to gather all aspects of the learning

process with a point of departure in the single pupil. When the system is fully implemented, the teachers have to make individual learning plans for every pupil available on the digital platform. The system includes a guide for the teachers explaining how to set up the individual learning targets. In this way, the system can help the teachers to implement the law, and one of the interviewed headmasters said he believed that this would improve the quality of the learning plans. In the end, the interviewed headmaster thought that the combination of the law and the use of the new IT system would result in a completely new way to organise teaching. Instead of planning the teaching at class level, the teacher would be able to plan individual learning processes for each pupil, making it possible for them to reach their individual learning targets.

The implementation of 'My Education' will also reshape the relationship between school, pupil and home. Parents can read their child's learning targets directly and follow whether (or not) s/he reaches the target. This makes it possible for parents to follow up on teaching at home, but it may also encourage the child to work harder in order to reach his/her learning target.

In the end, the implementation of 'My Education' opens up for a completely new way of gathering and analysing data from many different sources. The CEO of the school sector predicted that the platform could serve as a place to gather data on the attainment of learning targets, the annual wellbeing survey among pupils, national tests of knowledge levels, and other more individual sources of perceptual knowledge about single pupils' learning processes. This data would make it possible to analyse many different issues. The CEO suggested, for instance, that one could analyse why boys and girls react differently to the same curriculum. Moreover, if the data show a sudden increase in a pupil's (or a group of pupils') knowledge level, for instance, it will be possible to analyse the reason for this. The CEO also predicted that the gathering of all this data would reveal patterns in learning processes, raising completely new questions about teaching and learning. In this way, the CEO of the local school sector has high expectations for how the new IT system can be used to improve the core business of the school sector – the pupils' learning process.

The example of 'My Education' shows how the central IT department conducts IT governance by distributing leadership among each individual school. First, a technical solution is selected based on interaction between the CIO and the CEO of the school sector. Following this, they invite the schools to join a pilot project in which their objectives and values are brought into play in the further development of the system. In this way, the example shows a distribution of leadership in two directions: from the top to the bottom of the organisation, and from the IT department to the schools. Distributed leadership is hereby empirically identified as a process that occurs both between the different levels of the organisation and between IT competences and teaching competences.

## **5. Conclusion**

The empirical analysis of this case study reveals several significant findings. The first has to do with the importance of organisation – i.e. centralised or decentralised. The case study shows that decoupled decentralisation resulted in a fragmented organisation, which caused serious problems for the teachers when using IT in their daily work. However, the local government in this case managed to overcome this fragmentation by establishing a hybrid organisation consisting of a special IT school team connected both to the local schools and to the central IT department. This is an important finding, which may be useful for other practitioners working with organisations and IT governance.

Second, the case study reveals how conducting IT governance involves distributing leadership throughout the organisation in question. The distribution of leadership works in two directions. The first direction is from the top of the organisation (here the IT department) towards the bottom of the organisation (here a particular local school). This distribution involves a process of translating the different IT strategies from one level of the organisation to another. In this process, actors at every level are responsible for ensuring a connection between the overall strategic objectives and the objectives and values operating at their level of the organisation.

Leadership is also distributed by the professionals in the IT department to the professionals of the school sector. This distribution among different professionals also takes place at different levels of the organisation. At the central level of the municipality, the distribution takes place between the CIO of the IT department and

the CEO of the school sector. They have to interact with each other to find the best technical solution which can fulfil the needs of the school sector and which is compatible with the rest of the municipal IT infrastructure. However, the process of distributing IT leadership also occurs at the decentralised level of the organisation. This takes the form of IT capacity-building in the daily work of a local school. It consists of interaction between IT technicians, teachers, and librarians at the local school. Together, they perform IT governance in their daily work of including IT in their teaching. By doing this, they fulfil the overall objectives of the public sector IT strategies, and at the same time take into account the objectives and values of the teaching at school level.

The importance of the distribution of leadership in the implementation of IT governance is a crucial finding. The empirical description of how this distribution occurs may serve as input to theoretical discussions about how to perform IT governance in a way that supports municipalities' transition to e-government.

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